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Timber Sale Planning and Analysis System: A Guide to the TSPAS Express Program

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TSPAS
EXPRESS



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Research Summary

The TSPAS Express program (TSPAS_X) is one of three programs in the Timber Sale Planning and Analysis System. It is intended to be used by timber sale planning teams to design and analyze timber sales. TSPAS_X encourages development of several timber sale alternatives, differing in terms of cutting units harvested, the type of harvest treatments applied, or both. TSPAS_X can be used initially several years before a timber sale is offered and again later to update sale information as plans and data become more refined and specific.

TSPAS_X is an interactive computer program operating on the Forest Service's Data General computer system. Users begin by entering general sale information, such as selecting the transaction evidence model used and the year the sale will likely sell. The user then enters information for a sale alternative, including specified road cost, data for the transaction evidence appraisal model, essential regeneration costs, various Forest Service planning and administrative costs, and costs for any nonharvest activities associated with the sale project. TSPAS_X generates two reports. The first contains appraisal information and the discounted present value of costs and revenues associated with the sale alternative. The second report provides a record of all user-entered sale information. Both reports serve as documentation of economic analysis when TSPAS_X is used in the NEPA process.

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Introduction

The Timber Sale Planning and Analysis System (TSPAS), originating from the Economics Research Unit of the Intermountain Research Station, was developed to help planners create and evaluate timber sale alternatives. However, during software development, the TSPAS role in the sale preparation process was enhanced. In spring 1995, the U.S. Forest Service's Washington Office Timber Management Staff released a revision of the Timber Sale Preparation Handbook (FSH 2409.18). Among other changes, the handbook added financial and economic efficiency analysis requirements for Gates 1-3 in the sale preparation process. TSPAS was a ready-made tool for meeting these requirements and providing documentation for the analysis process.

TSPAS consists of three programs: the TSPAS Sale Program (TSPAS_SP) (Schuster and others 1995), the TSPAS Default Database Program (TSPAS_DDP) (Jones and others 1995), and the newest member, TSPAS Express (TSPAS_X) (this publication)—all designed for use on the U.S. Forest Service's Data General (DG) computer.

TSPAS_SP, geared to developing and analyzing timber sale alternatives, provides planners the flexibility to evaluate almost any sale. TSPAS_SP permits analyzing alternatives as a whole or as a collection of individual harvesting units, offers the ability to analyze existing stands and regenerated stands, allows multiple harvest entries into the existing stands, permits specifying multiple timber products within the same sale, provides the opportunity to include all important nontimber outputs and nonharvest activities associated with the sale alternative, and provides the option of including Forest Service costs for planning and administrating timber sales. TSPAS_SP facilitates the quick development of up to 20 alternatives by offering default values as a starting point. These defaults are not embedded in the TSPAS_SP software. Rather, default values, customized for a specific geographic area, reside in a "default" database.

TSPAS_DDP constructs and supports the default databases in TSPAS_SP. TSPAS_DDP compiles basic planning information for a specific geographic area. This information reflects local management practices along with species composition, cost information, management prescriptions, nontimber responses, and other data used in TSPAS_SP. Default databases are typically created at the U.S. Forest Service Regional Office level, with data refinement occurring at the National Forest level.

TSPAS_SP, combined with a geographically specific default database, delivers a powerful tool that can be easily adapted to many situations. However, experience in the Forest Service's Northern Region indicates that many Region sales do not require the powerful flexibility of TSPAS_SP.

Sales often include only one timber product. Analysis is usually restricted to alternative sale designs for timber harvest only. Nontimber outputs, although important and considered elsewhere in the planning process, may not be included in the timber sale economic analysis. And analysis tends to be restricted to the sale being planned. For these basic, "no-frill" sales (whether in the Northern Region or elsewhere), we developed TSPAS Express as the newest tool in the TSPAS toolbox.

TSPAS Express (TSPAS_X) is a scaled-down, streamlined (hence "eXpress") version of the Sale Program using only a few critical features of the full program. TSPAS_X retains the strength of the economic analysis characteristic of the Sale Program but narrows the planning horizon to just the timber harvest currently being planned. As in TSPAS_SP, TSPAS_X offers the opportunity to include in the analysis nonharvest activities and Forest Service planning and administration costs. TSPAS_X streamlines alternative sale design development by providing forest default values, compressing data input, analyzing the alternative as a whole, and automatically proceeding from one data-input screen to the next, thus by-passing the Sale Program menu structure. TSPAS_X reports basic appraisal information, such as the base rate, indicated advertised rate, and predicted high bid; other related financial information, such as the potential effective road credits and the dollars available for nonessential Knutson-Vandenberg and other trust funds; and discounted net values for Forest Service sale preparation and administration costs, road planning and construction costs, other associated sale costs, and net revenues. Armed with this information, you can address questions of sale viability, potential contribution to trust funds, the costs of additional nonharvest activities such as ecosystem burning or stream channel enhancement, as well as answer "what if" questions regarding alternative sale designs such as different mixes of treatment units, alternative silvicultural treatments, or yarding methods.

Although TSPAS_X appears to be a separate program, it is actually a "re-routing" of the Sale Program — that is, it is part of the Sale Program. Being intimately linked allows TSPAS_SP and TSPAS_X to share the same data and be used interchangeably. Thus, the time-saving advantages of Express can be exploited with complex sales by first entering the basic, current-entry data with TSPAS_X and then using TSPAS_SP to enhance the sale as necessary.

This manual presents detailed, step-by-step instructions for operating TSPAS_X. First we address the general rules and conventions underlying TSPAS_X. We then discuss each of the data-entry screens and their operation in detail. Finally, we describe the two reports that are automatically generated with TSPAS_X. The Software Availability and Installation section provides instructions for acquiring and installing the TSPAS software. Appendix A outlines the specific coding requirements in TSPAS_DDP for the special Forest Service costs that are exclusive to TSPAS_X. Appendix B lists possible error and warning messages.

Note: In keeping with an "express" format, the TSPAS_X manual briefly describes the operation of the software but does not delve into many of the underlying details. These details can be found in the TSPAS_SP user manual (Schuster and others 1995). For the operation of TSPAS_DDP, see Jones and others (1995).

Rules and Conventions

Function Keys and Cursor Movement

TSPAS_X uses many DG function keys available in CEO. Some functions are generally available and will always be operable. Other function keys have limited availability. The “limited availability” function keys are posted at the bottom of the DG screen, when appropriate. However, the “generally available” function keys are not always displayed because of space limitations. Function keys include:

General Availability...Key	Limited Availability...Key
Execute	F1
Status	C-F5
Insert Space	F7
Delete Character	F8
Delete Field	F9
Cancel/Exit	F11
Quick Off	S-C-F1
Sale Description Screen	S-C-F2
Backfield	S-F11

The purpose of most function keys is self-explanatory, but a few important conventions used in TSPAS_X warrant mention. First, a data entry must be followed by pressing NEWLINE. If data are typed or selected from an INDEX list and some other function key is pressed (PREVIOUS LINE, NEXT LINE, and so forth) without first pressing NEWLINE, the entry is lost. Second, EXECUTE “saves” all data entries or modifications made on a screen and accesses the next screen. Third, CANCEL/EXIT returns to the previous screen without saving any data entries or modifications made on the current screen. Fourth, QUICK-OFF immediately terminates the TSPAS_X session without saving any unsaved information. Finally, STATUS provides a brief inventory of the information that has been entered. STATUS can be selected at any time after a sale name has been provided. Note: STATUS is a toggle switch and must be pressed again to return to the original screen.

Lists

From time to time TSPAS_X asks for the name of an item from a list of permissible items. An on-line listing of these items is available via INDEX for the following:

- Default database names
- Output (associated with nonharvest activities)
- Sale alternatives
- Sale names
- Timber species
- Transaction evidence model names

Names can be selected directly from the list.

Sale Year and Timing of Activities

Sale year, entered by the TSPAS_X user, is the year the sale is expected to occur. The timing of all activities is specified in the number of years *from* the sale year. Therefore, activities occurring during the sale year have timing set to 0. The timing for activities occurring after the sale have positive values (for example, 2 indicates 2 years after the sale year). And activities occurring prior to the sale year have negative values (for example, -1 specifies 1 year before the sale year). The sale year can be changed at any time with no effect as long as the relative timing for other activities does not change. However, activities that have already occurred are influenced by

a sale year change because this alters the relative timing. Therefore, we suggest reviewing all sale activities to ensure the accuracy of timing whenever the sale year is modified. For discounting purposes, all activities are assumed to occur at the end of the year. Hence, activities occurring in year 0 are discounted 1 year, those occurring in year 1 are discounted 2 years, and so on.

Analysis Year, Dollars, and Real Value Change

The analysis year is the year the sale is being analyzed, defaulting to the current, calendar year. All costs and prices must be entered in “analysis-year” dollars. Likewise, TSPAS_X displays all screen defaults and report calculations in analysis-year dollars. For further details refer to the User’s Guide to the TSPAS Sale Program (Schuster and others 1995).

The analysis year can be changed at any time. However, when modified, TSPAS_X alerts the user that previously entered data may need to be adjusted to be consistent with the new analysis year. Also, default values for any new data entered after the change will be expressed in the new analysis-year dollars.

Special Forest Service Costs

Previously, Forest Service costs were specified in the default database as either a cost-per-acre or a cost-per-unit-volume. Now, two categories of Forest Service costs are exclusively available to TSPAS_X: (1) cost per mile, and (2) cost-per-representative sale volume. Currently TSPAS_X reserves the cost-per-mile category for the engineering costs for road construction and reconstruction. Specifying engineering costs on a per-mile basis, rather than per unit volume, seems consistent with how field personnel handle these costs on the ground.

TSPAS_X calculates Forest Service costs per unit volume by multiplying the Forest Service cost and the harvest volume for the alternative. Therefore, with varying volumes, each alternative can potentially have different values of the cost assessed. Measuring cost-per-representative sale volume is done the same except that a constant (representative) volume is used in the calculation. Thus, each alternative is assessed at the same level of cost.

Instructions for entering these special costs in the TSPAS Default Database Program are in appendix A: Specifying Special Forest Service Cost Codes for TSPAS.DDP.

Funding Nonharvest Activities

In developing a sale alternative, TSPAS_X users may indicate that some type of nonharvest activity will be accomplished. This activity could be intended to promote timber, as with fertilization, or nontimber output, as with stream channel restoration. Users indicate which activities they desire to be funded with discretionary Knutson-Vandenberg funding. If these funds are inadequate, TSPAS_X assumes the shortage will be supplemented with appropriated funds in order to include the full costs of the activities in the present net value calculations.

Operating TSPAS Express

To initiate TSPAS Express:

1. Access IS (Information System).
2. In IS, navigate to the drawer and folder that accesses TSPAS_X.
(The drawer and folder was specified in TSPAS installation. Consult the TSPAS installer for this information.)

3. At the IS command line, type: TSPAS_X.
TSPAS_X first requests the sale name:

Enter sale name:

If the desired sale exists, type the sale name or select the name from the INDEX list of all existing sales. TSPAS_X then initializes the program and moves to the Sale Description screen.

For a new sale, provide a new sale name. TSPAS_X asks for the name of a default database and provides the most recent default database (*recent ddb*) as the default:

Enter default database name: *recent_ddb*

If for some reason the most recent database is not desired, select another by entering its name or choosing from the INDEX list. Selection of a specific default database determines the default values encountered on data-entry screens.

Sale Description

The Sale Description screen (exhibit 1) is accessed after supplying the sale name. The top half of the screen collects basic information about the sale itself and applies to all alternatives developed for the sale.

Region, Forest, and Ranger Dist are descriptive information, not used in any calculations, and printed at the top of the output report.

Appraisal model is the name of the transaction evidence (TE) appraisal model to be used in the sale. For a new sale, TSPAS_X provides as default the most recent TE model available in the default database. Normally this model would be selected, but if an earlier model is preferred, type its name or select it via INDEX. If there is more than one “most recent” model, TSPAS_X asks:

More than 1 model available. Do you want to view the model list? (y/n):

Exhibit 1

SALE DESCRIPTION

Region: 7 Forest: SPOOKY OLD Ranger Dist: SMOKEYS
Sale Name: HONEY DO

Appraisal model: W971

Primary timber product: SAWTIMBER

Analysis year: 1997

Sale year: 1999

Volume for representative-sale-volume USES costs: 5000.00 MBE

Sale Alternative: Cutting Unit:
Unit Size: 0 Acres

Specified road cost: .00/MBF

Road construction: .00 miles Engineering cost: .00 \$/mile
Road reconstruction: .00 miles Engineering cost: .00 \$/mile

F1=execute

F11=cancel/exit

S-F11=back field

S-E2-index

Answering 'n' moves the cursor to the Appraisal model field. Answering 'y' automatically displays the INDEX list of model names where a model can be selected.

During the course of planning and designing a timber sale, a new TE model may become available. When TSPAS_X detects that a more recent model is available, the user is asked:

More recent model available. Do you want to switch models? (y/n):

Answering 'n' moves the cursor to the analysis year field, with the original model intact. Answering 'y' will switch model information from the original model to the new model for all alternatives contained in the sale. (If there is more than one "most recent" model, answering 'y' displays the INDEX list of models available.) If the switch does not require any new information, TSPAS_X will report the switch as successful. However, if the new model requires additional information, TSPAS_X indicates that all appraisal information needs to be updated. Note: switching TE models does not take effect until the Sale Description information is saved (EXECUTE). If the user chooses to CANCEL/EXIT from the screen, TSPAS_X restores the previous model and all associated information.

Primary timber product is the product for which the TE model predicts price. It is determined by the selection of the TE model. Volume of species to be harvested is entered in terms of the primary product's units of measure. The primary timber product is displayed here for information only and cannot be edited.

Analysis year is the year (4 digits) the sale is being analyzed, generally the current, calendar year. All costs and prices are entered in analysis-year dollars.

Sale year is the year (4 digits) the planned sale is likely to be sold.

If the default database does not contain representative-sale-volume U.S. Forest Service costs, the cursor moves directly from the sale year field to the sale alternative/cutting unit section on the screen. However, if the default database does contain these costs, the Sale Description screen displays the **Volume for representative-sale-volume USFS costs** field. Enter the target harvest volume for the sale in this field. See the Rules and Conventions section (Special Forest Service Costs) for further discussion.

After the representative volume and NEWLINE have been entered, TSPAS_X asks:

Do you want to edit these USFS costs and timing? (y/n):

Responding 'n' moves the cursor to the sale alternative/cutting unit section on the screen. Responding 'y' accesses the representative-sale-volume USFS costs screen (exhibit 2). TSPAS_X provides defaults for these USFS costs and timing of activities based on default database values and built-in assumptions. Both costs and timing can be modified. **Cost** is expressed in dollars-per-unit volume harvested. **Years from xxxx** (where xxxx is the sale year) identifies the timing of the cost. If the cost occurs in more than 1 year, enter each year, separated by a comma. (Execute to save changes and return to the Sale Description screen.)

The bottom half of the Sale Description screen collects information unique to individual sale alternatives (exhibit 3).

Sale Alternative requests a name for the alternative. Specifying a previously defined alternative displays all previously entered information. TSPAS_X displays default values whenever a new sale alternative is specified. Because TSPAS_X restricts analysis to sale alternatives as a whole,

Exhibit 2

FOREST SERVICE COSTS (Current Entry)

Sale Year: 1999
Analysis Year: 1997

Cost Category	Basis	Cost	Years from 1999
a. STAND EXAM	Total	9.95	-3
b. TRANS PLAN	Total	9.24	-2
c. ANLYS/DOC	Total	29.19	-1
d. SALE PREP	Total	28.59	-1

F1=execute

F11=cancel/exit

S-F11=back field

Exhibit 3

SALE DESCRIPTION

Region: 7 Forest: SPOOKY OLD Ranger Dist: SMOKEYS
Sale Name: HONEY DO

Appraisal model: W971
Primary timber product: SAWTIMBER

Analysis year: 1997 Sale year: 1999

Volume for representative-sale-volume USFS costs: 5000.00 MBF

.....

Sale Alternative: SCN2 Cutting Unit: SCN2
Unit Size: 1588 Acres

Specified road cost: 28.30/MBF

Road construction: 3.50 miles Engineering cost: 27500.00 \$/mile
Road reconstruction: 3.50 miles Engineering cost: 18300.00 \$/mile

F1=execute

F11=cancel/exit

S-F11=back field

S-F2=index

the **Cutting Unit** name is automatically set to the sale alternative name; this field cannot be edited.

Unit Size is the total number of acres harvested in the sale alternative.

Specified road cost is the cost of the purchaser building specified roads associated with the sale alternative, expressed in dollars-per-unit volume harvested.

Specified road cost is the last field on this screen if the default database does not include any cost-per-mile Forest Service costs. However, if the default database includes Forest Service costs measured on a cost-per-mile basis, the Sale Description screen displays the appropriate road construction and reconstruction fields, described below.

Road construction asks for the number of miles of constructed new road for the sale alternative, while **Engineering cost** asks for the Forest Service engineering cost per mile associated with that new construction.

Road reconstruction asks for the number of miles of reconstructed existing road for the sale alternative, while **Engineering cost** asks for the Forest Service engineering cost per mile associated with that reconstruction.

Once all information is specified, TSPAS_X asks if the Sale Description screen should be executed. Answering 'n' returns the cursor to the last field on the screen, while a 'y' response saves all information and moves the cursor to the appraisal screen.

Current Entry Appraisal (Existing Stand)

The current entry appraisal screen (exhibit 4) displays the **Sale Alternative** and **Cutting Unit** specified earlier in the top left corner. Across the top of the screen appear several reminders: **Entry #**, primary timber **Product**, cutting **Unit size**, **Year of entry**, and **Analysis Year**. The left side of the screen displays **Sale Characteristics** and **Sale Requirements**. Under **Sale Characteristics** are listed the categories automatically chosen

Exhibit 4

CURRENT ENTRY APPRAISAL (EXISTING STAND)			ENTRY # 1
Sale Alternative: SCN2	Product: SAWTIMBER	Unit size: 1588	Year: 1999
Cutting Unit: SCN2			Analysis Year: 1997
Sale Characteristics	Species	Volume	WWPA LP
	--MBF--	-----MBF-----	
	1 DF	3700.0	425.94
	2	.0	.00
	3	.0	.00
	4	.0	.00
	5	.0	.00
Sale Requirements	Planned # Cutting Units in Sale:	1	
	ADBH (cu):	11.00 INCHS (11 items remain)	
	+-----+	GROSS VALUE	276.35
	+-----+		
	ENVIRO PROTEC:	51.12 (3 costs remain)	
	+-----+		
	Essent Regen:	.00 Base Rate:	30.00
	+-----+		Advertised Rate: 105.04
	Ind Adv Rate:	105.04 "High Bid":	218.25

F1=execute

F11=cancel/exit

F4=next product

F13=save

C-F4=end field

by TSPAS_X for site preparation and regeneration method. The default costs associated with these categories are combined to calculate the default essential regeneration cost. TSPAS_X does not select default sale requirements because they are for descriptive purposes only. Therefore, this portion of the screen will be empty for any sale developed using TSPAS_X.

Appraising a sale alternative involves entering species and associated harvest volumes until the total harvest volume has been specified. Species are limited to those defined in the default database. Additionally, up to three columns of species-specific values may be required, depending on the TE model chosen for the sale. Species-specific fields "scroll" allowing up to 20 species.

Pressing NEWLINE on a blank species field moves the cursor to the **Planned # of Cutting Units in Sale** alternative. For processing screen calculations, TSPAS_X requires the number of cutting units being analyzed. Because the sale alternative is being analyzed as a whole, a '1' should be entered in this field.

The next several fields collect the main block of data needed by the TE model. The first field collects information for the adjustors or variables contained in the TE model being used. The counter at the right shows the number of items remaining in the scrolling field. Provide the information as requested and press NEWLINE to move through the list. (END FIELD moves the cursor to the next field without going through the list.) For a new appraisal, TSPAS_X waits until the last data request is supplied and NEWLINE pressed, then calculates the value associated with the TE model and displays it in the box. Subsequently, the TE model value is constantly updated as information is modified.

The next field collects data for any necessary cost adjustments required to convert the TE model value to a prediction of high bid. Adjustment categories as well as the default costs are specific to the TE model selected for the sale. Review the values and edit or accept the information as appropriate. (END FIELD moves the cursor to the next field without going through the list.)

The final data field, **Essential Regeneration cost**, completes appraisal information. The essential regeneration default value is based on site preparation and regeneration costs and the harvest volume specified. For a new appraisal, essential regeneration remains zero until the cursor reaches the field. At this point TSPAS_X calculates and displays the default value. After this, any modification to harvest volume will not affect the essential regeneration cost.

Other information displayed at the bottom of the screen, **Indicated Advertised Rate**, **Base Rate**, **Advertised Rate**, and **High Bid**, are computed from the information supplied on the screen and contained in the associated default database. TSPAS_X automatically updates these values whenever user-supplied information is modified. They cannot be edited directly.

Harvest Rates and Forest Service Costs

Exhibit 5 is the Harvest Rates and Forest Service Costs screen. TSPAS_X displays the sale alternative specified earlier and places the cursor on **Contract length**. Provide a contract length of 1 year or greater. In TSPAS_X, the contract length determines the year for **Harvest Rate** and the **Forest Service Costs**. When NEWLINE is selected, TSPAS_X sets the harvesting year to the midpoint of the contract and sets the year for cost categories according

Exhibit 6

NONHARVEST ACTIVITIES

Sale Alternative: SCN2

Sale Year: 1999
Analysis Year: 1997

Description	Years from 1999	Cost	Primary Output	KV Funded
a. ECOSYS BURN		.00		
b.		.00		
c.		.00		
d.		.00		
e.		.00		
f.		.00		
g.		.00		
h.		.00		
i.		.00		
j.		.00		
k.		.00		
l.		.00		
m.		.00		
n.		.00		
o.		.00		

F1=execute F11=cancel/exit F13=save S-F2=index S-F11=back field

Exhibit 7

NONHARVEST ACTIVITIES

Sale Alternative: SCN2

Sale Year: 1999

Description	Year: 1997	ut	KV	Funded
a.	ECOSYS BURN	---	---	-----
b.				
c.	Year(s) from 1999 for ECOSYS BURN			
d.	(separate with commas): 2			
e.				
f.	Cost of ECOSYS BURN:			
g.	Cost per acre: .00			
h.	-OR-			
i.	Total Cost: 291830.08			
j.				
k.	Primary output associated with			
l.	ECOSYS BURN: MISC			
m.				
n.	Is ECOSYS BURN to be funded by KV? (y/n): Y			
o.				

F1=execute F11=cancel/exit F13=save S-F2=index S-F11=back field

using commas to separate more than 1 year. Next, enter the cost of the activities in analysis-year dollars, either on a per-acre or total-cost-for-the-alternative basis. Per-acre costs are multiplied by the number of cutting unit acres in the sale alternative. **Important: If the nonharvest activity involves acres other than the total harvesting acres, enter the cost as a total cost for the alternative.** Next, record the target output for the activity. This output must be one of the timber products or nontimber outputs defined in the default database. (INDEX can be useful here.) Finally, indicate whether the activity is funded with Knutson-Vandenberg dollars. When the window has been completed, answer 'y' to **Continue?** to return to the original screen. An 'n' response returns the cursor to the Knutson-Vandenberg field. Once entered, data for the nonharvest activities can be edited in the fields on the screen.

Report 4: Overall Management Summary

TSPAS_X runs Report 4, Overall Management Summary, and Report 6; Sale Data and Information (discussed later). This is done automatically upon completion of the Nonharvest Activity screen. When the report has been written to the file identified on the screen, the box shown in exhibit 8 is displayed. Enter 'P' to print the report file, 'V' to view the file on your monitor, or select CANCEL/EXIT to return to the Sale Description screen.

Exhibit 9 shows the Overall Management Summary. This is the same report generated by TSPAS_SP. However, TSPAS_X does not provide the option for entering information for some of the items in this report: Other Timber Products, Other Effective Road Credits, FS-Built Roads, Future Entries in the Existing Stands, First or Other Rotations in the Regenerated Stands, Nontimber Benefits, and nontimber output quantities. Therefore, for sale alternatives built entirely with TSPAS_X, these items will be blank or zero.

The top of the report summarizes basic information for the sale alternative, including the number of acres and harvest volume. The top-left portion displays the appraisal information, beginning with the TE predicted value. Its label refers to whatever value is estimated by the TE model (such as GROSS VALUE). Next is the sum of the **Cost Adjustments** that are subtracted from the TE predicted value to calculate **Predicted HIGH BID**. The **Bid Adjustment**, also known as the statistical adjustment factor, is subtracted from the Predicted High Bid to estimate the **INDICATED ADVERTISED RATE**. **Base Rate** is the larger of the average minimum bid rate, or the essential regeneration costs plus the minimum deposit to the Federal Treasury. **ADVERTISED RATE** is the larger of Base Rate or Indicated Advertised Rate. **Predicted STAT HIGH BID** is the Predicted

Exhibit 8

```
+-----+
|          PRINT OR VIEW A REPORT FILE
|
| File: Honey_Do.1.report_4
|
| P=Print, V=View   Enter choice:
|
| -Press CANCEL/EXIT (F11) to return to menu-
+-----+
```

Exhibit 9

Report 4. OVERALL MANAGEMENT SUMMARY

Timber Sale: Honey Do Forest: Spooky Old District: Smokeys Alt: SCN2

Acres: 1588 Vol: 3700.0 MBF Cut Units: 1 Sale Year: 1999 Product: SAWTIMBER

Objectives and Constraints:

TIMBER HARVESTS

-----Current Entry----- (1997 \$ per MBF)	
GROSS VALUE:	276.35
...Cost Adjustments:	58.10
Predicted HIGH BID:	218.25
...Bid Adjustment:	113.21
INDICATED ADVERTISED RATE:	105.04
...Base Rate:	30.00
ADVERTISED RATE:	105.04
Predicted HIGH BID:	218.25
...Ineffective Rd Credits:	.00
...Effective Rd Credits:	28.30
Predicted STAT HIGH BID:	189.95
 (1997 \$1000)	
Predicted STAT HIGH BID:	702.8
...Other Timber Products:	.0
...Other Eff Road Credits	.0
...FS-Built Roads:	.0
TOTAL TIMBER VALUE:	702.8
...K-V Costs:	304.6
...FS Costs:	606.9
NET SALE VALUE:	-208.7

-----Current Entry----- (PV 1997 \$1000 @ 4.0%)	
Predicted STAT HIGH BID:	577.7
...Other Timber Products:	.0
...Other Eff Road Credits:	.0
...FS-Built Roads:	.0
TOTAL TIMBER VALUE:	577.7
...K-V Costs:	250.4
...FS Costs:	554.5
NET SALE VALUE:	-227.2
 -----All Entries----- (PV 1997 \$1000 @ 4.0%)	
Existing Stands	
...Current Entry:	-227.2
...Future Entries:	.0
...Other Timber Costs:	.0
TOTAL	-227.2
Regenerated Stands	
...First Rotation:	.0
...Other Rotations:	.0
TOTAL	.0
PNV Timber:	-227.2

NONTIMBER OUTPUTS

	Alt	Most	Least
	----- (Rating) -----		
MISC	1	1	2

----- (PV 1997 \$1000 @ 4.0%) -----		
Benefits	Costs	Net
.0	.0	.0

PNV Nontimber:	.0
OVERALL PNV:	-227.2

NOTE: \$ 304.6 of K-V costs for nontimber are included in PNV for timber

High Bid minus the **EFFECTIVE Rd Credits**. All appraisal terms follow standard Forest Service practices.

The middle-left section of the report expresses quantities in terms of total, undiscounted, analysis-year dollars. **Predicted STAT HIGH BID** here is the previous line multiplied by harvest volume and expressed in thousands of dollars. **Other Timber Products** is the gross value from secondary timber products. **Other Effective Road Credits** are the prorata portion (value-weighted) of incremental effective credits assigned to secondary timber products. Information on **FS-Built Roads** appears only if the choice "Forest Service" is specified (in TSPAS_SP) for road construction. **TOTAL TIMBER VALUE** is Predicted Stat High Bid plus Other Timber Products, minus Other Effective Road Credits, minus FS-Built Roads. **K-V Costs** are the essential regeneration costs plus other fundable Knutson-Vandenberg costs; K-V Costs are limited to the maximum amount of K-V Costs available for the sale alternative. **FS Costs** are the planning and administrative costs associated with the sale alternative (including any cost-per-representative sale volume costs and per-mile costs).

The top-right portion of the report displays the present values associated with the current entry, expressed in thousands of analysis-year dollars. The items are the same as in the undiscounted section in the middle-left section.

The middle-right section reports present value (PV) for **All Entries**. Under **Existing Stands**, the value for **Current Entry** is brought down from the Net Sale Value above. The PV for **Future Entries** includes the timber-related costs and revenues associated with future harvests of the existing stand. This includes all future harvests in the existing stand through the final harvest plus regeneration costs associated with those harvests. **Other Timber Costs** include nonharvest activities having a timber product as their target output when (1) the nonharvest activity is funded with appropriated funds or (2) there are insufficient Knutson-Vandenberg funds available to cover the nonharvest costs that were marked for K-V funding. Under **Regenerated Stands**, the PV for **First Rotation** includes the timber-related costs and revenues associated with the first rotation of the regenerated stand. The regeneration costs are included at the time of the regeneration harvest, following the convention used for the existing stand. The PV for **Other Rotations** includes the costs and revenues from all future rotations following the first rotation of the regenerated stand. Finally, **PNV Timber** is the discounted net value of all present and future timber-related costs and revenues.

The bottom portion of the report summarizes nontimber output information for the sale alternative. The left-hand column identifies the nontimber outputs, listing first each nontimber output assigned a dollar value. There are two fields to the right of the output names—ratings and present values. The ratings field contains three rating headings: (1) the rating for the **Alternative** displayed in the report; (2) the rating for the sale alternative with the **Most** nontimber output; and (3) the rating for the sale alternative with the **Least** nontimber output. Below the ratings is a summary of physical output quantities, expressed as the average annual net change (over decades 1 through 5 and 6 or more) from the without-sale situation to the sale alternative. Note: this item appears only when the physical quantities for nontimber outputs are specified for the sale alternative.

The bottom right-hand column displays the nontimber **Present Value**, expressed in analysis-year dollars. There are three headings: (1) **Benefits** is the net change in benefits (from the without-sale situation to the sale alternative), discounted to the analysis year; (2) **Costs** include the costs

of all nonharvest activities whose target output was the valued nontimber output; only costs paid with appropriated funds are included, including cost of activities ear-marked for Knutson-Vandenberg funding but for which there were insufficient K-V funds; and (3) Net is the nontimber benefits minus the costs. **PNV Nontimber** is the sum of Net values over all nontimber outputs that have been assigned a value. Note: where appropriate, an entry appears at the bottom of the report, stating that a certain amount of K-V costs for nontimber are included in PNV for timber. This is the amount of K-V costs for nontimber purposes that were included in the K-V costs for the current entry in the upper part of the table. The last dollar entry is **OVERALL PNV**, which is the sum of PNV Timber and PNV Nontimber.

Exhibit 10

Report 6. SALE DATA AND INFORMATION

Sale Name: Honey Do	Forest: Spooky Old	District: Smokeys
Alternative: SCN2	Sale Year: 1999	Product: SAWTIMBER

SALE DESCRIPTION:

Region: 7	Forest: Spooky Old	Ranger Dist: Smokeys
Sale Name: Honey Do	Location:	

Forest Plan Information

Management Area:

Objectives & Constraints:

Appraisal method for existing stand: Transaction Evidence

Model: w971 Effective date: 10/1996

Appraisal method for regenerated stand: Transaction Evidence

Primary timber product: SAWTIMBER

Analysis year: 1997 Sale year: 1999

SELECT & DESCRIBE NONTIMBER OUTPUTS:

Nontimber Output	Rated or Quantified	Valued	Unit of Measure	Value /Unit
MISC	QUANTIFIED	YES	UNITS	50.00

SELECT & DESCRIBE TIMBER PRODUCTS:

Timber Product	Unit of Measure	Cubic Feet per Unit
SAWTIMBER	MBF	167.00

Report 6: Sale Data and Information

TSPAS_X automatically runs Report 6, Sale Data and Information, directly after Report 4. The first page of this report, shown in exhibit 10, recalls all user-entered information entered for the particular alternative. The report format groups the prescriptions for all cutting units together, followed by the current entry appraisal for all cutting units, which is followed by the appraisal for each cutting unit having a future entry, and so on.

We suggest using this report to inspect data input for accuracy and completeness. Incorrect data needs to be corrected through the TSPAS_X data-entry screens.

References

Jones, J. Greg; Meacham, Mary L.; Schuster, Ervin G.; Cahoon, Rick D. 1995. Timber Sale Planning and Analysis System: a user's guide to the TSPAS Default Database Program. Gen. Tech. Rep. INT-GTR-325. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 118 p.

Schuster, Ervin G.; Jones, J. Greg; Meacham, Mary L.; Cahoon, Rick D. 1995. Timber Sale Planning and Analysis System: a user's guide to the TSPAS Sale Program. Gen. Tech. Rep. INT-GTR-321. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 74 p.

Note to Readers: These two publications—as well as extra copies of the current, in-hand publication—are available from the Intermountain Research Station. Send your mailing information in label form through one of the following media. Please specify the publication title and number.

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Ogden, UT 84401

Software Availability and Installation

TSPAS—including TSPAS_DDP, TSPAS_SP, and TSPAS_X—is available only as a package. The following instructions load this software from “scratch.” If TSPAS already resides on the site, please contact the Missoula Forestry Sciences Laboratory for an update at MAILROOM:S22L01A, specifying that the message be forwarded to the TSPAS computer specialist. Or phone (406) 542-4169.

Although anyone with DG access can retrieve the TSPAS software from our Missoula Forestry Sciences Laboratory, two of the steps outlined below can only be performed by an ORACLE database administrator (DBA). Therefore, we suggest that the ORACLE DBA perform all of the steps.

Seven steps are involved for installing the TSPAS software:

1. RIS TSPAS dump file
2. Load TSPAS dump file
3. Install TSPAS
4. Ensure TSPAS users have an ORACLE profile
5. Add to drawer searchlist
6. Test run TSPAS
7. Set default printer
8. Set edit access for TSPAS users
9. Clean up leftover files

Step 1: RIS TSPAS dump file

The RIS procedure is performed in IS. From the Main Menu and subsequent menus, choose the options as follows:

MAIN MENU

- (3) Utilities
- (6) Transfer
- (1) Information Transfer
- (2) Retrieval

LOCAL INFORMATION STRUCTURE

Level: (Public/Staff)
if Staff: (Yourstaffname)
Drawer: (Yourdrawername)
Folder: (Yourfoldername)
File: TSPAS.DMP
— Local transfer action? N

REMOTE INFORMATION STRUCTURE

Host: S22L01A
Level: 2. Staff
Staff: ECON
Drawer: TSPAS
Folder: DUMP_FILE
File: TSPAS.DMP
— Remote information? N
— Do you want mail notification? Y
— Do you want to submit ... request NOW? N
— Time: 1800

Step 2: Load TSPAS dump file

From the Main Menu in IS choose as follows:

MAIN MENU

- (3) Utilities
- (4) Load Dumpfile(s)

Level (1.Public, 2.Staff, 3.Personal): ?
Drawer Name: (Yourdrawername)
Folder Name: (Yourfoldername)
Dumpfile Name: TSPAS

Do you want to delete existing files if they occur? Y

The Level, Drawer Name, and Folder Name should be where TSPAS.DMP is stored.

This dumpfile contains the following files:

DDP_USER_EXITS.PR: Program that processes the TE model (used in TSPAS_DDP)

RUFFLE.PR: Program that writes the initial screen for the TSPAS_DDP

RUFFLE_IBM.PR: Same as RUFFLE.PR except has different ORACLE parameters (use when running the DG via the IBM - 615)

TSPAS.PR: The main executable program for TSPAS_SP

TSPAS_EXPRESS.PR: Program writes to file TSPAS.EXPRESS directing that TSPAS_X be executed

TSPAS_N_EXPRESS.PR: Program writes to file TSPAS.EXPRESS directing that TSPAS_SP be executed

CLEANUP_TSPAS.CLI: Deletes unnecessary files after TSPAS is loaded

INSTALL_TSPAS_DDB.CLI: Starts procedure for importing tables to ORACLE's DDB instance

INSTALL_TSPAS_IDB.CLI: Starts procedure for importing tables to ORACLE's IDB instance

TSPAS_DDP.CLI: Executes TSPAS_DDP

TSPAS_DDP_IBM.CLI: Executes TSPAS_DDP (use when running the DG via the IBM - 615)

TSPAS_SP.CLI: Executes TSPAS_SP

TSPAS_X.CLI: Executes TSPAS_X

CREATE_PUB_SYN.SQL: Creates necessary ORACLE table synonyms

DROP_TSPAS_TABLES.SQL: Drops ORACLE tables used in TSPAS.
ONLY use to delete all TSPAS tables and their contents from ORACLE

TSPAS_GRANT.SQL: Creates necessary grants on ORACLE tables

README.TXT: This document

TSPAS_TABLES.TXT: Document listing all ORACLE tables being added

TSPAS_DB.DMP: An ORACLE dumpfile of the TSPAS tables and rows contained

TSPAS_FILES.LIS: A list of files included in TSPAS_DB.DMP

The Default Database Program SQL* Forms are as follows:

TSPAS_AA_APPR.FRM

TSPAS_AA_REGEN.FRM

TSPAS_AA_REGEN_DEFRLTS.FRM

TSPAS_CAT_LIST.FRM

TSPAS_COST.FRM

TSPAS_FELLCUCK_COST.FRM

TSPAS_FOREST_COST.FRM

TSPAS_LOG_LIST.FRM

TSPAS_MAIN.FRM

TSPAS_MISC_LIST.FRM

TSPAS_NONTMBR_OUTS.FRM

```
TSPAS_REAL_CHNG.FRM  
TSPAS_REGEN_VOL_NEW.FRM  
TSPAS_RV_APPR.FRM  
TSPAS_SKIDLOAD_COST.FRM  
TSPAS_STRATA_COMBO_LIST.FRM  
TSPAS_STRATA_LIST.FRM  
TSPAS_TE_APPR.FRM  
TSPAS_TE_MINBID.FRM  
TSPAS_TE_REGEN.FRM  
TSPAS_TE_REGEN_DEFLLTS.FRM  
TSPAS_TE_REGEN_LIST.FRM  
TSPAS_TE_REGEN_VOL.FRM
```

NOTE regarding steps 3 and 4 below: These steps must be performed by a person with ORACLE DBA privileges. At this point the DBA needs to decide whether the TSPAS tables should be placed in the DDB or the IDB instance of ORACLE. Once that choice is made, follow steps 3 through 5 as appropriate.

Step 3: Install TSPAS

Navigate to the IS drawer and folder containing TSPAS.DMP. On the command line type “install_tspas_ddb” or “install_tspas_idb” (as appropriate). (The install macro temporarily modifies the drawer’s searchlist to include the directories needed for this step.) You will be prompted for a user name and password. Enter the user name “FSDBA”, then enter your ORACLE password. Next type in the indicated responses to the following questions:

Import file: EXPDAT.DMP > TSPAS_DB.DMP

Enter insert buffer size (minimum is 4096): 10240> (RETURN)

List contents of import file only (Y/N): N > (RETURN)

Ignore create errors due to object existence (Y/N): Y > N

Import grants (Y/N): Y > N

Import the table data (Y/N): Y > (RETURN)

Import entire export file (Y/N): Y > (RETURN)

...Importing table “...

After all the tables have been imported, the “FS DATA BASE ADMINISTRATION UTILITY” menu will appear on the screen. Choose option 4—“SQL*Plus”—from this menu. When asked for the database, respond with DDB or IDB (as appropriate). Once again you will be asked for the password; enter it as above. When you get the “SQL>” prompt, enter the following commands:

```
SQL> start create_pub_syn;
```

```
    synonym created
```

```
    synonym created
```

```
.
```

```
.
```

```
SQL> start tspas_grant;
```

```
    grant succeeded
```

```
    grant succeeded
```

```
.
```

```
SQL> bye
```

Press CANCEL/EXIT to leave the FSDBA utility.

Step 4: Ensure TSPAS users have an ORACLE profile

TSPAS accesses tables in the ORACLE database. Anyone wishing to run TSPAS must have (at least) CONNECT privileges to the ORACLE database.

Step 5: Add to drawer searchlist

Add the following two directories to the searchlist for the drawer/folder containing the executable files:

:ORACLE

:FSIA:DDB or FSIA:IDB (as appropriate)

If TSPAS is to be run from another drawer/folder, then add these directories to that drawer's searchlist as well. Finally, add the following directory to the searchlist of the drawer where TSPAS_DDP and TSPAS_SP are run:

:PUBLIC:LIBRARY:ROUTINES

Step 6: Test run TSPAS

To execute TSPAS_DDP, type 'TSPAS_DDP' on the command line of the drawer/folder specified in step 5. The banner screen should list version 1.4. Consult the TSPAS_DDP user guide for details regarding the operation of TSPAS_DDP. To execute TSPAS_SP, type 'TSPAS_SP' on the command line of the drawer/folder specified in step 5. The banner screen should list version 1.5. Consult the TSPAS_SP user guide for details regarding the operation of TSPAS_SP. To execute TSPAS_X, type 'TSPAS_X' on the command line of the drawer/folder specified in step 5. The banner screen should list version 1.5. Consult this user guide for details regarding the operation of TSPAS_X.

Step 7: Set default printer

Type 'TSPAS_SP' on the command line of the drawer/folder specified in step 5. To get to the Main Menu, type 'BIG BEAR' at the sale name prompt. At the Main Menu screen choose 5. Utilities. At the Utilities Menu screen choose 6. Set Default Printer. The data-input box asks for the printer name. Enter the printer name recognized by IS. Next, specify whether this printer is a laser printer. For laser printers, indicate whether the printer is a DG laser or an HP laser. Answer 'y' to Execute and exit the program either by following menu options or selecting QUICK-OFF (Cntrl-Shft F1).

Step 8: Set edit access for TSPAS users

For each TSPAS user specify Edit access on the drawer that TSPAS is executed from.

Step 9: Clean up leftover files

After installing TSPAS, some files no longer necessary will remain in the directory containing the dump file. If the installation was successful, navigate to that directory and on the command line type "cleanup_tspas". Do not type this command if the installation was not successful or you have to Retrieve the dumpfile again.

Appendix A: Specifying Special Forest Service Cost Codes in TSPAS_DDP

As discussed in the Rules and Conventions section of this manual, several categories of Forest Service costs have been defined for exclusive use in TSPAS_X. Using the TSPAS Default Database Program (TSPAS_DDP), these cost categories are specified on the USFS Costs for Current Entry screen (Costs Menu). The category names and descriptions for these costs are as follows:

Category	Description
\$/MI CST1	Cost per mile reserved for road construction engineering cost
\$/MI CST2	Cost per mile reserved for road reconstruction engineering cost
\$/VOL CST1	Representative-sale-volume USFS cost reserved for stand exams
\$/VOL CST2	Representative-sale-volume USFS cost reserved for transportation planning
\$/VOL CST3	Representative-sale-volume USFS cost reserved for analysis and documentation
\$/VOL CST4	Representative-sale-volume USFS cost reserved for sale preparation

All of these costs are to be entered in the \$ per-unit-volume column on the screen, and the **BASIS** should be 'T', indicating Total. If you specify Basis as 'Y' for Year, a potential problem arises: TSPAS_X multiplies the representative-sale-volume USFS Cost by only the volume harvested in the year specified by the TSPAS_X user. Because TSPAS_X assumes all volume is harvested at the mid-point of the sale contract, any year other than the mid-point year will have zero volume. Thus, any year specified in TSPAS_X, other than the mid-point year, will have a cost of zero assessed. To avoid this confusion, we suggest specifying the Basis as Total.

Appendix B: Error Messages

The following is a list of error and warning messages that can be encountered as TSPAS_SP is executed. The messages are bolded and ordered alphabetically. Asterisks (*****), at signs (@@@@@), and pound signs (######) represent instance-specific words, phrases, or numbers in the actual message viewed on the screen. Error messages are followed by an explanation, prevention, or remedy as appropriate.

Analysis year must be between #### & @@@@ (Default Databs base yr & Sale year)

(#### represents **Default Database base year**, and @@@@ represents **Sale year**) Analysis year specified was less than the Default Database base year or greater than the sale year. Analysis year must be greater than or equal to the Default Database base year and less than or equal to the sale year. These values are provided.

Analysis year must be between #### & @@@@ (Model base yr & Sale year)

(#### represents **Model base year**, and @@@@ represents **Sale year**) Analysis year specified was less than the TE model base year or greater than the sale year. Analysis year must be greater than or equal to the TE model base year and less than or equal to the sale year. These values are provided.

Analysis year must be at least #### (Default Database base year)

(#### represents **Default Database base year**) Analysis year specified was less than the Default Database base year. Analysis year must be greater than or equal to the Default Database base year. This value is provided.

Analysis year must be at least #### (TE model base year)

(#### represents **TE model base year**) Analysis year specified was less than the TE model base year. Analysis year must be greater than or equal to the TE model base year. This value is provided.

Complete this *** or press CANCEL/EXIT**

(***** represents a **field, window, or form**) Attempting to leave the field, window, or form without providing information for all data requests. All data must be provided before pressing execute. Alternatively, press CANCEL/EXIT to exit without changes.

Complete this *** or press INDEX or CANCEL/EXIT**

(***** represents a **field, window, or form**) Attempting to leave the field, window, or form without providing information for all data requests. All data must be provided before pressing execute. Alternatively, press INDEX for a list of valid entries or CANCEL/EXIT to exit without changes.

Complete this field, press EXECUTE or press CANCEL/EXIT

Attempting to leave either a nontimber output or timber product field without providing a name. This information must be provided before continuing. Alternatively, select CANCEL/EXIT to exit without changes.

Contract length must be at least ## (max harvest year+1)

(## represents the **last harvest year**) Attempting to alter contract length after harvest rates have been specified. If harvest rate information were in years 0, 1, and 2, the contract length could not be less than 3, for the 3 years listed. The contract length must be greater than or equal to ##, the last harvest entry specified plus 1.

Contract length must be between ## & @@ (max harvest year+1 & min future entry)

(## represents **maximum harvest year + 1** and @@ represents **minimum future entry**) Attempting to alter contract length after cutting unit prescriptions and harvest rates have been specified. The contract length must be greater than or equal to ##, the maximum harvest year in the harvest rate information plus 1. (If the harvest rate information were in years 0, 1, and 2, the contract length could not be less than 3, for the 3 years listed.) The contract length also must be less than @@, the earliest year specified in the future entries for the existing stand for this alternative. (Note: if future entries are added to the existing stand prescription after the contract length has been specified, it is possible to specify a future harvest occurring before the maximum harvest year in the harvest rate information. For example, suppose, max harvest = 3 and min future entry = 2. Contract length would need to be greater than 4 but less than 2. The only remedy for this infeasibility is to delete the earliest future entry, change the contract length to an acceptable value, and then re-enter the future entry information that was deleted.)

Data larger than specification

The number entered for the current field exceeds the maximum value acceptable for that field.

Default Database for sale specified not locked. Cannot access sale

Attempting to access a sale whose associated Default Database is not currently locked. The Default Database must be verified and locked in TSPAS_DDP before TSPAS_SP can access the sale specified.

Default Database specified does not exist

Specifying a Default Database name that has not been defined in the TSPAS Default Database. Press INDEX for a list of Default Database names.

Default Database specified not locked

Specifying a Default Database that does exist in the TSPAS Default Database but is not currently locked. TSPAS_SP can only access verified and locked databases.

File specified does not exist. Press INDEX for a list of existing files

Attempting to access a file that does not exist. Re-type the file name or select INDEX for a list of valid file names.

First line on display

Attempting to move above the first item of a list. There are no previous items on this list.

First timber product on display

The timber product selected as the primary product for this sale is on display. There are no products previous to this one.

Function not available

The function key pressed is not available in the current version of TSPAS_SP.

Function not currently valid

The function key selected cannot be used in the current context or environment or in the current section of the screen. The function may be valid in other screens or in other parts of this screen.

Hyphen at the end of year list has no year associated with it

TSPAS_SP has detected a hyphen (-) without an accompanying year located at the end of the number string.

Hyphen has no year associated with it -*

(* represents ',', '-' , or ' ') TSPAS_SP has detected a hyphen (-) without an accompanying year. The * displays the next character in the number string to aid in fixing the problem.

Hyphen permitted only for a negative year. Above read as # to @ (# and @ represent a number)

TSPAS_SP has detected a hyphen (-) between two numbers that cannot be processed. TSPAS_SP prohibits a set of numbers being entered as "2-5" (meaning 2,3,4,5). The hyphen (-) is reserved for designating negative years (that is, years before the sale year).

Invalid character: **. Valid characters are 0 thru 9, comma, space, minus

(* represents the invalid character) TSPAS_SP encountered an undefined character while processing a list of years. TSPAS_SP will accept only numerical digits zero (0) through nine (9), comma (,), space (), or minus (-).

Invalid character: * at position # in the following: @@@@@

(* represents the invalid character, # represents the position of the character, and @@@@@ represents data specified) TSPAS_SP encountered an undefined character while processing a data request (sale name, or alternative name, and so forth). The character in question is given by *, it is located in the character string @@@@@ in position #. TSPAS_SP will accept the following characters: lower-case letters (a-z), upper-case letters (A-Z), numbers (0-9), dollar sign (\$), period (.), question mark (?), and underscore (_).

Invalid year: #####. Enter years in terms of "number of years FROM" sale year

(##### represents a year) Attempting to enter a year greater than 1000, such as year "2020". Years in TSPAS_SP are counted from the sale year.

Last line on display

Attempting to move past the last item of a list. There are no more items on this list.

Model base yr > year sold. Select another model, or change year sold first

Attempting to alter the sale's TE model after sale year has been specified. The base year for the new TE model is greater than the sale year specified. Before this TE model can be selected, sale year must be changed to a value greater than or equal to this model's base year. Alternatively, another model having a base year less than or equal to sale year can be selected.

Model base yr > analysis yr. Select another model, or change analysis yr first

Attempting to alter the sale's TE model after analysis year has been specified. The base year for the new TE model is greater than the analysis year specified. Before this TE model can be selected, analysis year must be

changed to a value greater than or equal to this model's base year. (This may involve changing the sale year as well because analysis year must be less than or equal to sale year.) Alternatively, another model having a base year less than or equal to analysis year can be selected.

Model specified does not exist

Specifying a TE model for the current stand appraisal that has not been defined in the Default Database chosen. TSPAS_SP will not continue until a valid TE model is specified or CANCEL/EXIT is chosen. INDEX provides a list of the TE models available.

Model specified has not been saved in TSPAS_DDP

Specifying a TE model for this sale that exists in the Default Database chosen but has not been saved. TSPAS_SP can only access saved TE models.

New alternative exceeds the maximum of 20

Attempting to define a new alternative that will exceed the maximum. TSPAS_SP cannot support more than 20 sale alternatives for any given sale.

Printer not specified. Select Set Default Printer from Utilities Menu

Attempting to print a report file when no printer has been specified. The file cannot be sent to a printer until the printer information has been provided. This information is specified in the Set Default Printer screen accessed through the Utility Menu.

Sale year must be at least ##### (Analysis year)

Sale year specified was less than the analysis year. Sale year must be greater than or equal to analysis year. This value is provided.

Species specified does not exist

Specifying a species in the appraisal information that has not been defined in the Default Database associated with the sale. TSPAS_SP will only accept species listed in the Default Database. Press INDEX (S-F2) for a list of valid species.

TE information incomplete. Enter value for estimated units or select CANCEL/EXIT

Attempting to move from the appraisal screen being displayed without first completing the information requests. Complete the appraisal information before moving to the next product, next entry, or selecting EXECUTE. Alternatively, select CANCEL/EXIT to exit without changes.

WARNING: Input data larger than field

TSPAS_SP has encountered a value, either directly entered or calculated, that exceeds the maximum value acceptable to the field. TSPAS_SP fills the problem field with stars (****).

WARNING: Previously entered data may be inaccurate with analysis year change

Attempting to alter the analysis year for this sale after alternative/cut unit combinations have been defined. Cost and price information may be incorrect with this change. All cost and price information entered to date should be examined for accuracy.

Year must be at least zero

Attempting to enter a negative value for year. In this location, years must be greater than or equal to zero.

Meacham, Mary L.; Stewart, Fred; Jones, J. Greg. 1997. *Timber Sale Planning and Analysis System: a guide to the TSPAS Express Program*. Gen. Tech. Rep. INT-GTR-348. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 25 p.

Presents a guide to the operation of the TSPAS Express Program (TSPAS_X), one of three programs in the Timber Sale Planning and Analysis System. TSPAS_X is a scaled-down, streamlined (hence, "eXpress") version of the TSPAS Sale Program (TSPAS_SP). Like TSPAS_SP, TSPAS_X helps field teams design and evaluate timber sale alternatives. TSPAS_X additionally offers more expedient data entry by compressing data input, bypassing the menu structure, and focusing attention on the current sale being planned. Two reports are generated back-to-back. The first contains appraisal information and the discounted present value of costs and revenues. The second report provides a record of all user-entered sale information.

Keywords: timber management, databases, appraisal, sale planning, economic analysis



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